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The Sixth International Workshop on Automatic Performance Tuning (iWAPT2011)

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Abstract

This preface summarizes The Sixth International Workshop on Automatic Performance Tuning (iWAPT2011).

Keywords: Performance modeling; Adaptive algorithms; Numerical algorithms and libraries; Scientific applications; Parallel and distributed computing; Computing with GPGPU and accelerators; Database management system; Numerical precision and stability; Resource restrictions (real-time, memory etc.); Empirical Compilation; Automatically-tuned Code Generation; Frameworks and theories of automatic tuning and software optimization; Autonomic computing and context-aware computing; Low-power computing and green computing; Position papers;

1. Preface

The Sixth International Workshop on Automatic Performance Tuning (iWAPT2011) was originally to have been held at the Tsukuba International Congress Center, Tsukuba, Japan, from June 1st to June 3rd, 2011, in conjunction with International Conference on Computational Science (ICCS2011). However, after the Tohoku Pacific Ocean Earthquake hit Japan on 11th March, 2011, both ICCS and iWAPT were moved to Singapore. The iWAPT organizing committees wish to express our deepest sympathies to all persons affected by the earthquake in Japan.

The workshop organizers gratefully acknowledge the efforts of the iWAPT2011 Organizing Committee and Program Committee. iWAPT2011 was sponsored by ATRG: Automatic Tuning Research Group, Grant-in-Aid for Scientific Research (B), "Adaptive Auto-tuning Technology Aiming Complex Multicore and Multiprocessor Environments," Grant-in-Aid for Scientific Research (B), "Development of Auto-tuning Specification Language Towards Manycore and Massively Parallel Processing Era," and "ULP-HPC: Ultra Low-Power, High-Performance Computing via Modelling and Optimization of Next Generation HPC Technologies," CREST, JST.

The objective of this iWAPT is to provide opportunities for researchers and practitioners in all fields related to automatic performance tuning to exchange ideas and experiences on algorithms, libraries, and applications tuned for recent computing platforms. After discussion and careful review with respect to these related topics, the program

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committee selected seven papers for oral presentation. The accepted papers cover diverse areas of auto-tuning, from systems software to applications in numerical computation.

In addition to these papers, the committee invited two widely-recognized researchers to present keynote talks. The first is Dr. Victor Pankratius (The University of Karlsruhe / Karlsruhe Institute of Technology), an expert working at the intersection of software engineering for multicore systems and auto-tuning. The second keynote speaker is Dr. Franz Franchetti (Carnegie Mellon University, USA), well-known for his ground-breaking work on Spiral, an auto-tuning program generation system for signal processing transforms. In his invited talk, Dr. Franchetti discusses irregular kernels with highly data-dependent control flow that operate on dynamic data structures, which makes traditional optimization methods impossible to apply. The topics by both invited speakers have been chosen to stimulate discussion at the workshop on new research directions for auto-tuning.

This workshop would not have been possible without the significant efforts of numerous and dedicated individuals. We thank this group, who worked diligently to ensure iWAPT2011 will be a great success.

We believe that the overall workshop program will be of significant interest both to its participants and the larger research community. The workshop itself provides the opportunity for interaction and discussion on technical and theoretical issues.